

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number
WO 2004/089102 A1

(51) International Patent Classification⁷: **A23G 9/04**,
9/14, 9/22

(21) International Application Number:
PCT/DK2004/000219

(22) International Filing Date: 30 March 2004 (30.03.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
PA 2003 00530 7 April 2003 (07.04.2003) DK

(71) Applicant (for all designated States except US): **TETRA
LAVAL HOLDING & FINANCE S.A.** [CH/CH]; Avenue
Général-Guisan 70, CH-1009 Pully (CH).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **RASMUSSEN, Hen-
rik, Guldmann** [DK/DK]; Børupvej 291, DK-8310 Tran-
bjerg J (DK).

(74) Agent: **PATENTGRUPPEN ApS**; Aroskaerden,
Aaboulevarden 31, DK-8000 Aarhus C (DK).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

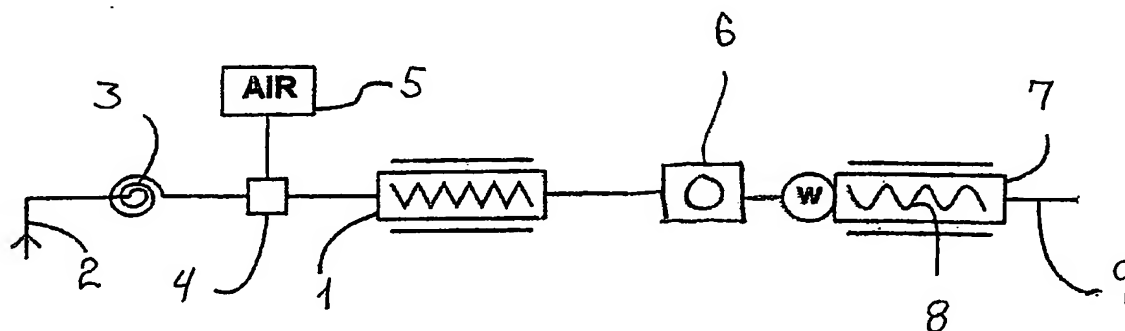
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), Euro-
pean (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR,
GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK,
TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW,
ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS FOR THE PRODUCTION OF ICE-CREAM MASS WITH SOLID INGREDIENTS



(57) Abstract: An apparatus is disclosed for the production of frozen ice-cream mass with solid ingredients, which in the finished ice-cream mass will appear substantially as inclusions which distinguish themselves by flavour, appearance and/or consistency from the surrounding homogenous ice-cream mass. The apparatus comprises a first through-flow freezer for cooling of a continuous flow of mass, and a second through-flow freezer for further cooling of the continuous flow of mass, where a mixing-in arrangement for the mixing of solid ingredients into the continuous flow of mass is inserted between the through-flow freezer and the second through-flow freezer. It is hereby achieved that the mixing-in of the solid ingredients takes place in the frozen ice-cream mass when this has a temperature between -3°C and -7°C at which the viscosity of the mass is low. In order to achieve this uniform distribution of the solid ingredients, it is an advantage that the second through-flow freezer comprises a freezing cylinder and a conveyor screw which comprises a plurality of screw flights, at least two of which extend over the inlet part of the longitudinal extent of the conveyor screw, and where the outer edges of the two screw flights extend at different radial distance from the longitudinal axis. There is hereby achieved a better induction to the second through-flow freezer, and the inlet pressure can be reduced, typically to 4-6 bar.